

REMARKS/ARGUMENTS

The applicants have studied the office action mailed August 19, 2010 and have made the changes believed appropriate to place the application in condition for allowance. Reconsideration and reexamination are respectfully requested.

As set forth above and explained below, claims have been amended. Applicants submit that any amendment to the claims herein does not comprise acquiescence or admission that any canceled, amended or supplemented subject matter that existed prior to the amendments herein is not patentable. Applicants reserve the right to pursue claimed subject matter as presented prior to the amendments herein during subsequent prosecution of the present application and in any continuation or related applications.

Claims 1, 37, 48, and 59 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. This rejection is respectfully traversed.

It is the Examiner's position that these claims include an improper negative limitation, stating:

"claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. More specifically, newly amended claims 1, 37, 48, and 59 recite "using an operating system, using the target file containing the image data as a file instead of a volume so that the target file is not operated as a volume by an operating system", and "using an operating system, operating the target volume as a volume, including locating said user files in said target volume using said file system of said target volume so that the target volume is operated as a volume instead of a file by an operating system"; wherein the examiner is unable to find support within the specification for such limitations. Especially wherein the target file is used as a file instead of a volume and operating the target volume as a volume instead of a file."

The applicants respectfully disagree. However, in order to expedite prosecution, the phrases "instead of a volume so that the target file is not operated as a volume by an

operating system” and “so that the target volume is operated as a volume instead of a file by an operating system” have been deleted from claim 1, for example. Claims 37, 48, and 59 have been similarly amended. It is respectfully submitted that the Examiner’s rejection is moot and should be withdrawn.

Claim 1 has been amended to recite “using the target file containing the image data as a temporary repository for the contents of the source volume including the file system of the source volume, in which the target file has not been mounted to permit using the file system contained within the target file” Support for this amendment includes paragraph 45 of the application as published as U.S. Pub. No. 2005/022031. Claims 37, 48, and 59 have been similarly amended. It is respectfully submitted that this amendment is fully supported by the specification and should be entered.

Claims 1, 37, 48, and 59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This rejection is respectfully traversed.

It is the Examiner’s position that:

“Claims 1, 37, 48, and 59 are rejected under 35 U.S.C. 112, second paragraph, for having negative limitations, which are not clearly pointed out within the description. Specifically, the claims recite the limitations “using an operating system, using the target file containing the image data as a file instead of a volume so that the target file is not operated as a volume by an operating system”, and “using an operating system, operating the target volume as a volume, including locating said user files in said target volume using said file system of said target volume so that the target volume is operated as a volume instead of a file by an operating system”.

The applicants respectfully disagree. However, as noted above, in order to expedite prosecution, the phrases “instead of a volume so that the target file is not operated as a volume by an operating system” and “so that the target volume is operated as a volume instead of a file by an operating system” have been deleted from claim 1, for example. Claims 37, 48, and 59 have been similarly amended. It is respectfully submitted that the Examiner’s rejection is moot and should be withdrawn.

As set forth above, Claim 1 has been amended to recite “using the target file containing the image data as a temporary repository for the contents of the source volume including the file system of the source volume, in which the target file has not been mounted to permit using the file system contained within the target file ...” Support for this amendment includes paragraph 45 of the application as published as U.S. Pub. No. 2005/022031. Claims 37, 48, and 59 have been similarly amended. As stated therein, the specification positively recites, for example, mounting the flat file [target file] as a storage unit so that files stored within the flat file may be accessed using the file system contained within the flat file. It is respectfully submitted that the recited limitation is clearly definite and should be entered.

Claims 37-41 and 45-47 are rejected under 35 U.S.C. 101 on the basis that the claimed invention is directed to non-statutory subject matter. This rejection is respectfully traversed.

The applicants respectfully disagree. However, in order to expedite prosecution, Claims 37-41 and 45-47 have been amended to recite an “article of manufacture for data management, comprising at least one of hardware and a combination of hardware and software, said at least one including machine readable instructions stored on the hardware that when executed, causes the machine to perform operations ...” It is respectfully submitted that the recited article is clearly statutory subject matter.

Claims 1, 3, 5-6, 37, 39-43, 48, and 50-52 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Cannon (US Patent No. 6,098,074) filed October 29, 1997, in view of Patterson (US Patent Application No. 2003/0182326) filed March 19, 2002, and further in view of Friske (US Patent No. 6,070170). Claims 2, 11, 38, 46, 49, and 57 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Cannon (US Patent No. 6,098,074) filed October 29, 1997, in view of Patterson (US Patent Application No. 2003/0182326) filed March 19, 2002 further in view of Friske (US Patent No. 6,070170), and further in view of Maurer (US Patent Application No. 20030065780) filed September 27, 2002. Claims 10, 12, 45, 47, 56, and 58 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Cannon (US Patent No. 6,098,074) filed October 29, 1997, in view of Patterson (US Patent Application No. 2003/0182326) filed

March 19, 2002, and further in view of Friske (US Patent No. 6,070170), and further in view of Maurer (US Patent Application No. 2003/0065780) filed September 27, 2002, and further in view of "Logical vs. Physical File System Backup", by: Hutchinson, Published: 1999; referred to hereinafter as 'Hutchinson'. Claim 59 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Cannon (US Patent No. 6,098,074) filed October 29, 1997, in view of Patterson (US Patent Application No. 2003/0182326) filed March 19, 2002, further in view of Maurer (US Patent Application No. 2003/0065780) filed September 27, 2002, further in view of "Logical vs. Physical File System Backup", by: Hutchinson, Published: 1999; referred to hereinafter as 'Hutchinson', and further in view of Friske (US Patent No. 6,070170). These rejections are respectfully traversed.

Claim 1 is directed to a "data management method, comprising: using an operating system, operating a source volume of a source device wherein the source volume includes storage, a plurality of user files stored in said storage and a file system for locating said user files stored in said storage, said file system including an address table identifying the location of each file on said storage device, said operating including said operating system locating said user files in said storage using said file system and said address table of said file system; backing up contents of the source volume of the source device at a first client station as at least one object of a database stored in a data storage subsystem wherein the at least one object represents an image of the contents of the source volume of the source device; using the database, tracking attributes and location of the at least one object in the database; using the at least one object, restoring the contents of the source volume of the source device from the at least one object to at least one record of a target file in a file system stored on a storage device instead of to a volume being operated as a volume by an operating system so that the at least one record of the target file contains internally within said at least one record of said target file, image data representing said contents of the source volume including image data representing both said plurality of files and said file system of the source volume within said at least one record of said target file; using an operating system, using the target file containing the image data as a temporary repository for the contents of the source volume

including the file system of the source volume, in which the target file has not been mounted to permit using the file system contained within the target file; copying image data representing the contents of the source volume from the at least one record of the target file to a target volume of a target device so that the target volume contains the restored contents of the source volume including said plurality of files of the source volume and said file system of the source volume; and using an operating system, operating the target volume as a volume, including locating said user files in said target volume using said file system of said target.”

As set forth above, Claim 1 requires *inter alia*

“...using the at least one object, restoring the contents of the source volume of the source device from the at least one object to *at least one record of a target file in a file system stored on a storage device instead of to a volume being operated as a volume by an operating system* so that the at least one record of the target file contains internally within said at least one record of said target file, image data representing said contents of the source volume *including image data representing both said plurality of files and said file system of the source volume within said at least one record of said target file...*”

[Emphasis added.] The Examiner appears to be conceding that the Cannon reference does not teach or suggest, this limitation, stating:

However, Cannon is not as detailed with respect to restoring the contents to a target file in a file system stored on a storage device so that the target file contains said contents of the source device including said plurality of files and said file directory of the source device

Instead, it is the Examiner’s position that this deficiency is met by the Patterson reference:

On the other hand, Patterson discloses restoring the contents to a target file in a file system stored on a storage device so that the target file contains internally within said target file, image data representing said contents of the source device including image data representing both said plurality of files and said file directory of the source volume within said target file ([0049-00521, Patterson)

The applicants respectfully disagree.

Rather than restoring a plurality of files and file directory of the source device to a target file, the Patterson reference makes clear that the file systems are merged into a single *file system and volume*:

[0050] In accordance with the present invention, the backup server can "coalesce" or merge the snapshotted file systems associated with each of the backup clients to a single *file system and volume*. This coalescing of snapshots frees the backup server from having to have a separate *volume* for each backup client's file system. [emphasis added.]

It is respectfully submitted that a volume in a storage device is clearly different from one or more records in a target file. Thus, it is clear that the Examiner's citations to the single volume and file system of the Patterson reference clearly fail to teach or suggest "restoring the contents of the source volume of the source device from the at least one object *to at least one record of a target file in a file system stored on a storage device instead of to a volume being operated as a volume by an operating system*" as required by claim 1.

It is respectfully submitted that the single volume and file system of the Patterson reference clearly includes a plurality of separate user files and a directory structure *external* to the user files. Such an external directory structure provides a path for an operating system to navigate to each separate user file. Thus, it is clear that the Examiner's citations to the Patterson reference fail to teach or suggest "at least one record of the target file contains internally within said at least one record of said target file, image data representing said contents of the source volume *including image data representing both said plurality of files and said file system of the source volume within said at least one record of said target file ...*" as required by claim 1. [Emphasis added]

Thus, the Patterson reference appears to be directed to merging a plurality of volumes and file systems into a single volume and file system having a plurality of separate files and a directory structure *external* to the files. The Examiner has cited no portion of the Patterson reference which teaches or suggests "... using the at least one object, restoring the contents of the source volume of the source device from the at least one object *to at least one record of a target file in a file system stored on a storage*

device instead of to a volume being operated as a volume by an operating system so that the at least one record of the target file contains internally within said at least one record of said target file, image data representing said contents of the source volume including image data representing both said plurality of files and said file system of the source volume within said at least one record of said target file ...” [Emphasis added.]

Accordingly, it is clear that even if the Cannon and Patterson references are combined as suggested by the Examiner (a point not conceded), such a combination would clearly lack “... using the at least one object, restoring the contents of the source volume of the source device from the at least one object to *at least one record of a target file in a file system stored on a storage device instead of to a volume being operated as a volume by an operating system* so that the at least one record of the target file contains internally within said at least one record of said target file, image data representing said contents of the source volume *including image data representing both said plurality of files and said file system of the source volume within said at least one record of said target file ...*” as required by claim 1. [Emphasis added.]

The Examiner concedes that “the combination of Cannon in view of Patterson are not as detailed with respect to the restoring the contents to at least one record of a target file.” Instead, it is the Examiner’s position that “Friske discloses restoring the contents to at least one record of a target file (column 6, lines 2-13, Friske).” The applicants respectfully disagree.

Instead of restoring the contents of a source volume to a target file “so that the at least one record of the target file contains internally within said at least one record of said target file, image data representing said contents of the source volume *including image data representing both said plurality of files and said file system of the source volume within said at least one record of said target file ...*” as required by claim 1, the Friske system is said to copy “a set of pages 308 used to store records of one or more tables” in a database. Friske, col. 5, lines 42-47 and col. 6, lines 5-13.

Accordingly, it is clear that the operations of the Cannon, Patterson and Friske systems, considered alone or in combination, lack both “using the at least one object, restoring the contents of the source volume of the source device from the at least one

object to at least one record of a target file in a file system stored on a storage device instead of to a volume being operated as a volume by an operating system so that the at least one record of the target file contains internally within said target file, image data representing said contents of the source volume including image data representing both said plurality of files and said file system of the source volume within said at least one record of said target file ..." and "using an operating system, using the target file as a temporary repository for the contents of the source volume including the file system of the source volume, in which the target file has not been mounted to permit using the file system contained within the target file" as required by claim 1.

Still further, the flat file 124 containing the pages 308 is said to be used for "recreating [pages of] the database" [Friske, col. 6, lines 5-13]. Thus, the Friske system as described is not used to restore a volume. Hence, it is clear that the operations of the Cannon, Patterson and Friske systems, considered alone or in combination, lack "copying image data representing the contents of the source volume from the at least one record of the target file to a target volume of a target device so that the target volume contains the restored contents of the source volume including said plurality of files of the source volume and said file system of the source volume ..." as required by claim 1.

The deficiencies of the Examiner's citations to the Cannon, Patterson and Friske references are not met by the Examiner's citations to the Maurer or Hutchinson. Thus, whether or not it "would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Friske's teachings into the Cannon, Patterson, Maurer, and Hutchinson system" (a point not conceded), it is clear that such a combination does not in any manner teach or suggestion the method of claim 1. Independent claims 37, 48 and 59 may be distinguished in an analogous fashion.

It is respectfully submitted that applicants have established above that even if the references are *combined* in the manner suggested by the Examiner, that such a *combination* fails to teach or suggest the claimed inventions.

The rejection of the dependent claims is improper for the reasons given above. Moreover, the dependent claims include additional limitations, which in combination

with the base and intervening claims from which they depend provide still further grounds of patentability over the cited art.

For example, dependent claim 11 further requires: "... wherein said target file is a flat file." It is the Examiner's position that the Maurer reference teaches "wherein said target file is a flat file" citing paragraphs 0074, 0102 of the Maurer reference. The applicants respectfully disagree.

It is respectfully submitted that the cited paragraphs discuss creating or using a map of the logical configuration of the physical devices on the source computer system in the form of a flat file:

[0074] The method further includes discovering logical information related to the Standard volumes that are part of the volume group on the source computer system 113a. A map of the logical information to physical devices on the source computer system is created, preferably in the form of a flat file that may be converted into a tree structure for fast verification of the logical information. That map is used to build a substantially identical logical configuration on the target computer system 113b, preferably after the logical information has been verified by using a tree structure configuration of the logical information. Maurer reference, paragraph 74.

Table 2 of the Maurer reference provides an example of such mapping information. The Examiner has cited no portion of the Maurer reference which in any manner teaches or suggests that "at least one record of the target [flat] file contains internally within said at least one record of said target [flat] file, image data representing said contents of the source volume *including image data representing both said plurality of files and said file system of the source volume within said at least one record of said target [flat] file ...*" as required by claims 1, 11. [Emphasis added] Instead, in the Maurer reference, restoring files from a source standard volume is believed to be from either "the BCV's [business continuation volumes] on the target or tape."

Accordingly, even if the Cannon, Patterson and Maurer references were combined, a point not conceded, it is clear that such a combination would at most include the Cannon storage system using a map of the logical configuration of the physical devices on the source computer system in the form of a flat file as discussed in the

Maurer reference. The Examiner has cited no portion of the Cannon, Patterson and Maurer references, considered alone or in combination, which in any manner teaches or suggests that “at least one record of the target [flat] file contains internally within said at least one record of said target [flat] file, image data representing said contents of the source volume *including image data representing both said plurality of files and said file system of the source volume within said at least one record of said target [flat] file ...*” as required by claims 1, 11.

As explained in the present specification, the claimed method permits the contents of a source device to be restored from a single file, the recited “a target file”. By comparison, it appears that a restoration method in accordance with the Maurer reference, utilizes many separate files, including a “tree structure file” which maps the logical configuration of the computer system as described at paragraph 74 of the Maurer reference, together with the data files containing the actual backed up data itself stored in either “the BCV’s [business continuation volumes] on the target or tape” as described at paragraph 110 of the Maurer reference. Similarly, the Cannon system uses an inventory table separate from the user files or managed files as discussed above.

Dependent claims 3, 46, and 57 and independent claim 59 may be distinguished in a similar fashion.

Moreover, a method in accordance with the present description can, in one embodiment, readily permit the restoration of the source device contents using an operating system command such as the Unix “dd” command, to copy the contents of the target file to the target device (see claim 12) to restore the contents of the source device. Such contents are not limited to any particular type of data or application. Furthermore, such a Unix command does not require operation of any application programs. By comparison, the “redo log” of the Maurer reference appears to be a part of the Oracle database and the database restore operation is performed by the Oracle database program using the redo log and the BCV’s on the target or tape. Maurer reference, paragraphs 106-111.

Dependent claims 47, 58 and independent claim 59 may be distinguished in a similar fashion.

As explained in the present specification, the claimed method permits the contents of a source device to be restored from a single record of a flat file. Thus, independent claim 59 recites “determining that a target device is not available; in response to said determination that said target device is not available, using the at least one object, restoring the contents of the source volume of the source device from the at least one object to a single record of a flat target file in a file system stored on a storage device at a second client station instead of to a volume being operated as a volume by an operating system so that the single record of the flat target file contains internally within said single record of the flat target file, image data representing said complete contents of the source volume including image data representing both said plurality of files and said file system of the source volume within the contents of the single record of the flat target file; using an operating system, using the flat target file as a temporary repository for the contents of the source volume including the file system of the source volume, in which the flat target file has not been mounted to permit using the file system contained within the flat target file; copying image data representing the complete contents of the source volume from the single record of the flat target file using the UNIX dd command to a target volume of said target device when available so that the target volume contains the complete restored contents of the source volume including said plurality of files of the source volume and said file system of the source volume ...” The Examiner has cited the Friske reference as determining that a target device is not available, citing col. 2, lines 53-67 of the Friske reference. However, it is submitted that the Examiner’s citation is directed to a determination of whether a target *database* is available rather than a target *device*. In any case, it is respectfully submitted that the Examiner has cited no portion of the references teaching or suggesting, alone or in combination, determining that a target device is not available, and in response to the determination, “restoring the contents of the source volume of the source device from the at least one object to a single record of a flat target file in a file system stored on a storage device at a second client station instead of to a volume being operated as a volume by an operating system so that the single record of the flat target file contains internally within said single record of the flat target file, image data representing said complete contents of the source volume

including *image data representing both said plurality of files and said file system of the source volume within the contents of the single record of the flat target file ...*” as required by claim 59. [Emphasis added.].

In view of the above, it is respectfully submitted that the rejection of the claims be withdrawn.

The Examiner has made various comments concerning the obviousness or anticipation of certain features of the present inventions. Applicants respectfully disagree. Applicants have addressed those comments directly hereinabove or the Examiner's comments are deemed moot in view of the above response.

Conclusion

For all the above reasons, Applicant submits that the pending claims are patentable over the art of record. Applicants have not added any claims. Nonetheless, should any additional fees be required, please charge Deposit Account No. 09-0466.

The attorney of record invites the Examiner to contact him at (310) 553-7970 if the Examiner believes such contact would advance the prosecution of the case.

Dated: November 19, 2010

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